DialogIP

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Metallocene olefin polymerisation catalyst compsn(s). - comprise a Gp IVA metal cyclopentadienyl complex contg. a polymerisable gp. on an inorganic support.
Patent Assignee: BP CHEM LTD
Inventors: CHABRAND C J; LITTLE I R; MCNALLY J P

Patent Family (19 patents, 23 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 586167	A1	19940309	EP 1993306665	A	19930823	199410	B
NO 199303078	A	19940307	NO 19933078	A	19930830	199416	E
CA 2105015	A	19940305	CA 2105015	A	19930827	199420	E
FI 199303805	A	19940305	FI 19933805	A	19930831	199420	E
JP 6172415	A	19940621	JP 1993216563	A	19930831	199429	E
CN 1087096	A	19940525	CN 1993118835	A	19930831	199529	E
NO 199702953	A	19940307	NO 19933078	A	19930830	199739	E
			NO 19972953	A	19970624		
NO 301332	B1	19971013	NO 19933078	A	19930830	199748	E
US 5714425	A	19980203	US 1993112098	A	19930826	199812	E
			US 1995467079	A	19950606		
			US 1995513663	A	19950810		
US 5714555	A	19980203	US 1993112098	A	19930828	199812	E
			US 1995467079	A	19950606		
RU 2126424	C1	19990220	RU 199350568	A	19930831	200022	E
EP 586167	B1	20000712	EP 1993306665	A	19930823	200036	E
			EP 1999203278	A	19930823		
DE 69328996	E	20000817	DE 69328996	A	19930823	200047	E
			EP 1993306665	A	19930823		
ES 2148204	T3	20001016	EP 1993306665	A	19930823	200058	E
KR 295941	B	20010703	KR 199317236	A	19930831	200226	E
			KR 200071247	A	20001128		
KR 322932	B	20020513	KR 199317236	A	19930831	200273	E
JP 3397846	B2	20030421	JP 1993216563	A	19930831	200328	E
FI 112234	B1	20031114	FI 19933805	A	19930831	200377	E
CA 2105015	C	20070403	CA 2105015	A	19930827	200726	E

Priority Application Number (Number Kind Date): GB 199218805 A 19920904; GB 19935963 A 19930323

Patent Details

Patent Number	Kind	Language	Pages	Drawings	Filing Notes
EP 586167	A1	EN	16	2	
Regional Designated States,Original	AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE				
CA 2105015	A	EN			
JP 6172415	A	JA	13	2	
NO 199702953	A	NO			Division of application NO 19933078
NO 301332	B1	NO			Previously issued patent NO 9303078
US 5714425	A	EN	10	2	Continuation of application US 1993112098
					Continuation of application US 1995467079
US 5714555	A	EN	10	0	Division of application US 1993112098
EP 586167	B1	EN			Related to application EP 1999203278
					Related to patent EP 969020
Regional Designated States,Original	AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE				
DE 69328996	E	DE			Application EP 1993306665
					Based on OPI patent EP 586167
ES 2148204	T3	ES			Application EP 1993306665
					Based on OPI patent EP 586167

KR 295941	B	KO		Division of application KR 199317236
KR 322932	B	KO		Previously issued patent KR 94007063
JP 3397846	B2	JA	12	Previously issued patent JP 06172415
FI 112234	B1	FI		Previously issued patent FI 9303805
CA 2105015	C	EN		

Alerting Abstract: EP A1

An olefin polymerisation catalyst compsn. comprises: (a) a metallocene complex of formula (I) or (II). In the formula M = a gp. IVA metal; X = an organic gp. contg. a cyclopentadienyl gp; Y = an univalent anionic ligand; R = a mono- or divalent 1-20C hydrocarbyl gp. opt. contg. O, Si, P, N, or B with the proviso that at least one R gp. contains a polymerisable gp. When R is divalent it is directly bonded to M and replaces a Y ligand. For formula (I): n = an integer from 1-10; x = 1 or 2; p = 0-3 when x = 1; p = 0-2 when x = 2.

For formula (II): Z = 1-4C alkylene, dialkyl germanium, dialkyl silicon, alkyl phosphine, bis 1-4C dialkyl germanyl, bis 1-4C dialkyl silyl, bridging the cyclo-penta-dienyl gps. nm m and l = 0 or an integer; n + m + l = 1 or greater; p = 0-2. (b) an inorganic support.

Also claimed is a process for the polymerisation of olefins comprising contacting at least one olefin monomer with the catalyst compsns.

USE - Used for the gas phase polymerisation of ethylene (claimed) and the copolymerisation of ethylene with alpha-olefins.

Main Drawing Sheet(s) or Clipped Structure(s)

International Classification (Main): C08F-004/64, C08F-004/68

International Patent Classification

IPC	Level	Value	Position	Status	Version
C08F-0010/00	A	I	L		20060101
C08F-0010/00	A	I		R	20060101
C08F-0002/34	A	I	L		20060101
C08F-0004/02	A	I		R	20060101
C08F-0004/44	A	I		R	20060101
C08F-0004/60	A	I	L	R	20060101
C08F-0004/602	A	I		R	20060101
C08F-0004/64	A	I		R	20060101
C08F-0004/642	A	I	L		20060101
C08F-0004/65	A	I	L	R	20060101
C08F-0004/656	A	I	F	R	20060101
C08F-0004/659	A	N	L		20060101
C08F-0004/659	A	N		R	20060101
C08F-0004/6592	A	I	L	R	20060101
C08F-0004/6592	A	N	L		20060101
C08F-0004/6592	A	N		R	20060101
C08F-0004/68	A	I	L	B	20060101
C08F-0004/76	A	I	F		20060101
C08F-0004/76	A	I		R	20060101
C08F-0010/00	C	I		R	20060101
C08F-0010/00	C	I			20060101

C08F-0002/34	C	I		20060101
C08F-0004/00	C	I	R	20060101
C08F-0004/00	C	I		20060101
C08F-0004/00	C	N		20060101

US Classification, Issued: 502-117000, 526-127000
US Classification, Issued: 502-103000, 502-152000, 502-158000, 526-160000, 526-904000, 526-905000, 526-943000, 556-052000, 556-053000, 556-056000, 987-002000
US Classification, Issued: 502103, 502152, 502158, 55652, 55653, 55656, 526160, 526943, 9872, 502117, 526160, 526904, 526905, 526943, 526127

Original Publication Data by Authority

Canada
Publication Number: CA 2105015 A (Update 199420 E)
Publication Date: 19940305
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: EN
Application: CA 2105015 A 19930827 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/76(A) C08F-2/34(B) C08F-4/642(B) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4|CA 2105015 C (Update 200726 E)
Publication Date: 20070403
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: EN
Application: CA 2105015 A 19930827 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-10/00(I,CA,20060101,A,L) C08F-10/00(I,M,98,20060101,C) C08F-2/34 (I,CA,20060101,A,L) C08F-2/34(I,M,98,20060101,C) C08F-4/00(I,M,98,20060101,C) C08F-4/00 (N,M,98,20060101,C) C08F-4/642(I,CA,20060101,A,L) C08F-4/659(N,CA,20060101,A,L) C08F-4/6592(N,CA,20060101,A,L) C08F-4/76(I,CA,20060101,A,F)
Current IPC: C08F-10/00(I,CA,20060101,A,L) C08F-10/00(I,M,98,20060101,C) C08F-2/34 (I,CA,20060101,A,L) C08F-2/34(I,M,98,20060101,C) C08F-4/00(I,M,98,20060101,C) C08F-4/00 (N,M,98,20060101,C) C08F-4/642(I,CA,20060101,A,L) C08F-4/659(N,CA,20060101,A,L) C08F-4/6592(N,CA,20060101,A,L) C08F-4/76(I,CA,20060101,A,F)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

China

Publication Number: CN 1087096 A (Update 199529 E)
Publication Date: 19940525
Assignee: BP CHEM LTD; GB (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: ZH
Application: CN 1993118835 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-10/02(A) C08F-4/64(B)
Current IPC: C08F-10/00(R,A,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

Germany
Publication Number: DE 69328996 E (Update 200047 E)
Publication Date: 20000817
Assignee: BP CHEM LTD; GB (BRPE)
Language: DE
Application: DE 69328996 A 19930823 (Local application) EP 1993306665 A 19930823 (Application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: EP 586167 A (Based on OPI patent)
Original IPC: C08F-4/64(A) C08F-4/02(B) C08F-10/00(B)
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European Patent Office
Publication Number: EP 586167 A1 (Update 199410 B)
Publication Date: 19940309
Katalysatorzusammensetzung und Verfahren zur Herstellung von Polyolefinen Catalyst compositions and process for preparing Polyolefins Compositions de catalyseurs et procede de preparation de polyolefines
Assignee: BP Chemicals Limited, Britannic House 1 Finsbury Circus, London EC2M 7BA, GB (BRPE)
Inventor: Chabrand, Christine Jacquline, BP Chemicals S.N.C. BP No 6, F-13117 Lavera, FR McNally, John Paul, BP Chemicals Limited, Chertsey Road, Sunbury-on-Thames TW16 7LN, GB Little, Ian Raymond, BP Chemicals Limited, Chertsey Road, Sunbury-on-Thames, Middlesex TW16 7LN, GB
Agent: Hymers, Ronald Robson et al, BP INTERNATIONAL LIMITED Patents Division Chertsey Road, Sunbury-on-Thames Middlesex, TW16 7LN, GB
Language: EN (16 pages, 2 drawings)
Application: EP 1993306665 A 19930823 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE
Original IPC: C08F-4/64(A) C08F-4/02(B) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)

Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4
Original Abstract: Catalyst compositions comprising metallocene complexes having polymerisable groups may be used for the preparation of polyolefins. The catalyst compositions may be in the form of polymers comprising the metallocene complex and may be suitably supported on inorganic supports. Polymers having a broad range of density and melt indices as well as low hexane extractables and excellent powder morphology and flowability may be obtained by use of the catalyst compositions. Preferred metallocene complexes are zirconium complexes in which the polymerisable group is vinyl.
Claim: * 1. A catalyst composition for use in the polymerisation of olefins char acterised in that it comprises at least one metallocene complex of gene ral formula I or II M(XRn)x Yp (I) [0022.0001] wherein R is a univalen t or divalent 1-20C hydrocarbyl, or a 1-20C hydrocarbyl containing subs tituent oxygen, silicon, phosphorous, nitrogen or boron atoms with the proviso that at least one R group contains a polymerisable group and pr eferably contains at least three carbon atoms, and when there are two R groups present they may be the same or different, and when R is divale nt it is directly attached to M, and replaces a Y ligand, wherein X i s an organic group containing a cyclopentadienyl nucleus, M is a Grou p IVA metal, Y is a univalent anionic ligand, and for formula I, n is an integer of 1 to 10 x is either 1 or 2, and when x = 1, p = 0- 3, when x = 2, p = 0-2, and for formula II, n, m and l are integers or 0 such that n + m + l <= 1, p = 0-2, and Z is a C1 to C4 alkylene radical or a dialkyl germanium or silicon or an alkyl phosphine or ami ne radical or bis-dialkylsilyl or dialkylgermanyl containing hydrocarby l groups having 1 to 4 carbon atoms bridging said cyclopentadienyl nucl ei, supported on an inorganic support. |EP 586167 B1 (Update 200036 E)
Publication Date: 20000712
Katalysatorzusammensetzung und Verfahren zur Herstellung von Polyolefinen Catalyst compositions and process for preparing Polyolefins Compositions de catalyseurs et procede de prepar ation de polyolefines
Assignee: BP Chemicals Limited, Britannic House , 1 Finsbury Circus, London EC2M 7BA, GB (BRPE)
Inventor: Chabrand, Chr istine Jacquline, BP Chemicals S.N.C., BP No 6, F-13117 Lavera, FR McNa lly, John Paul, BP Chemicals Limited, Chertsey Road, Sunbury-on-Thames TW16 7LN, GB Little, Ian Raymond, BP Chemicals Limited, Chertsey Road, Sunbury-on-Thames, Middlesex TW16 7LN, GB
Agent: Hymers, Ronald Robson, BP INTERNATIONAL LIMITED, Patents Division, Chertsey Road, Sunbury-on- Thames, Middlesex, TW16 7LN, GB
Language: EN
Application: EP 1993306665 A 19930823 (Local application) EP 1999203278 A 19930823 (Related to ap plication)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: EP 969020 A (Related to patent)
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI NL PT SE
Original IPC: C08F-4/64(A) C08F-4/02(B) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4
Claim: 1.Katalysatorzusammensetzung zur Verwendung bei der Polymerisation von Ol efinen, umfassend ein Polymer eines Olefins und mindestens ein Metalloc en der allgemeinen Formel I oder II M[XRn]xYp (I), [CF 0024.0001]wori n * R einen einwertigen oder zweiwertigen Kohlenwasserstoffrest mit 1-20 Kohlenstoffatomen oder einen Kohlenwasserstoffrest mit 1-20 Kohlensto ffatomen, der als

Substituent Sauerstoff-, Silizium-, Stickstoff- ode r Boratome enthalt, darstellt, mit der Massgabe, dass mindestens eine Gruppe R eine polymerisierbare olefinische Gruppe mit 3-20 Kohlensto ffatomen enthalt, und, wenn zwei oder mehrere Gruppen R vorliegen, si e gleich oder verschieden sein konnen, und, wenn R zweiwertig ist, es direkt an M gebunden ist und einen Liganden Y ersetzt, und worin * X eine organische Gruppe, die eine Cyclopentadienyl- oder oder Indeny lgruppe enthalt, darstellt, * M ein Metall der Gruppe IVA darstellt, Y einen einwertigen anionisch en Liganden darstellt, * und fur Formel I * n eine ganze Zahl von 1 bis 10 ist, * x entweder 1 oder 2 ist, und * wenn x = 1, p = 0 bis 3, wenn x = 2, p = 0 bis 2; * und fur Formel II, * n, m oder l ganze Zahlen oder 0 sind, so dass n+m+l>=1, p = 0-2, und * Z einen Rest darstellt, ausgewahlt aus der Gruppe, bestehend aus C1- bis C4-Alkylen, Dialkylgermanium oder Dialkylsilizium, einem Alkylpho sphin, einem Anm, Bisdialkylsilyl und Bisdialkylgermanyl mit einer Ko hlenwasserstoffgruppe, die 1 bis 4 Kohlenstoffatomen aufweist, getrag en auf einem anorganischen Trager. 1.A catalyst composition for use in the polymerization of olefins compris ing a polymer of an olefin and at least one metallocene of the general formula II or II M[XRn] xYp (I) [CF 0022.0001]wherein * R is a univalent or divalent 1-20 carbon hydrocarbyl or a 1-20 carbon hydrocarbyl containing substituent oxygen, silicon, nitrogen or boro n atoms with the proviso that at least one R group contains a polymer izable olefinic group containing 3-20 carbon atoms and when there are two or more R groups present they may be the same or different, and when R is divalent it is directly attached to M and replaces a Y liga nd, and wherein * X is an organic group containing a cyclopentadienyl or indenyl group, * M is a Group IVA metal, Y is a univalent anionic ligand, * and for Formula I * n is an integer of 1 to 10, * x is either 1 or 2, and * when x = 1, p = 0 to 3 when x = 2 p = 0 to 2; * and for Formula II, * n, m or 1 are integers or 0 such that n+m+1>=1, p = 0-2, and * Z is a radical selected from the group consisting of a C1 to C4 alkyl ene, a dialkyl germanium or dialkyl silicon, an alkyl phosphine, an a mine, bis-dialkyl silyl, and bis-dialkylgermanyl containing a hydroca rbyl group having 1 to 4 carbon atoms supported on an inorganic suppo rt. 1.Composition de catalyseur destinee a etre utilisee pour la polymerisati on d'olefines comprenant un polymere d'une olefine et au moins un metal locene de formule generale I ou II: M[XRn]x Yp (I) [CF 0027.0001]dans laquelle * R est un hydrocarbyle en 1-20C mono- ou divalent, ou un hydrocarbyle en 1-20C contenant des atomes d'oxygene, de silicium, de phosphore, d 'azote ou de bore a titre de substituants, a condition qu'au moins un groupe R contienne un groupe olefinique polymerisable ayant 3 a 20 a tomes de carbone et lorsque deux groupes R ou plus sont presents, ils peuvent etre identiques ou differents, et lorsque R est divalent, il est directement lie a M, et remplace un ligand Y, et dans laquelle * X est un groupe organique contenant un groupe cyclopentadienyle ou in denyle, * M est un metal du Groupe IVA, Y est un ligand anionique monovalent, * et pour la formule I, * n est un nombre entier de 1 a 10, * x est soit 1, soit 2, et * lorsque x = 1, p = 0 a 3, lorsque x = 2, p = 0 a 2; * et pour la formule II, * n, m ou 1 sont des nombres entiers ou 0 pour que n+m+l>=1, p = 0 - 2 , et * Z est un radical choisi dans le groupe constitue par un alcoylene en C1 a C4, un dialkylgermanium ou dialkylsilicium, une alkylphosphine, une amine, un bis-dialkylsilyle et un bis-dialkylgermanyle contenant un groupe hydrocarbyle ayant 1 a 4 atomes de carbone supporte sur un support mineral.

Spain
Publication Number: ES 2148204 T3 (Update 200058 E)
Publication Date: 20001016
Assignee: BP CHEM LTD (BRPE)
Language: ES
Application: EP 1993306665 A 19930823 (Application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: EP 586167 A (Based on OPI patent)
Original IPC: C08F-4/64(A) C08F-4/02(B) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64

(R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656
(R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592
(R,I,M,JP,20060101,20060310,A,L) C08F-4/68(B,I,M,KR,20060101,20060101,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

Finland
Publication Number: FI 112234 B1 (Update 200377 E)
Publication Date: 20031114
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: FI
Application: FI 19933805 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A I9930323
Related Publication: FI 9303805 A (Previously issued patent)
Original IPC: C08F-4/64(A) C08F-10/00(B) C08F-210/16(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00
(R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02
(R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64
(R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656
(R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592
(R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4|FI 199303805 A (Update 199420 E)
Publication Date: 19940305
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: FI
Application: FI 19933805 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/64(A) C08F-10/00(B) C08F-210/16(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00
(R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02
(R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64
(R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656
(R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592
(R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

Japan
Publication Number: JP 6172415 A (Update 199429 E)
Publication Date: 19940621
Assignee: BP CHEM LTD (BRPE)
Language: JA (13 pages, 2 drawings)
Application: JP 1993216563 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/656(A) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00
(R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02

(R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4|JP 3397846 B2 (Update 200328 E)
Publication Date: 20030421
Language: JA (12 pages)
Application: JP 1993216563 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: JP 06172415 A (Previously issued patent)
Original IPC: C08F-4/65(A) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

Republic of Korea
Publication Number: KR 295941 B (Update 200226 E)
Publication Date: 20010703
Assignee: BP CHEM LTD (BRPE)
Language: KO
Application: KR 199317236 A 19930831 (Division of application) KR 200071247 A 20001128 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/68(A)
Current IPC: C08F-4/68(A)|KR 322932 B (Update 200273 E)
Publication Date: 20020513
Assignee: BP CHEM LTD (BRPE)
Language: KO
Application: KR 199317236 A 19930831 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: KR 94007063 A (Previously issued patent)
Original IPC: C08F-4/68(A)
Current IPC: C08F-4/68(A)

Norway
Publication Number: NO 301332 B1 (Update 199748 E)
Publication Date: 19971013
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: NO
Application: NO 19933078 A 19930830 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Related Publication: NO 9303078 A (Previously issued patent)
Original IPC: C08F-4/64(A) C08F-10/00(B)

Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4|NO 199303078 A (Update 199416 E)
Publication Date: 19940307
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: NO
Application: NO 19933078 A 19930830 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/642(A) C08F-10/00(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4|NO 199702953 A (Update 199739 E)
Publication Date: 19940307
Assignee: BP CHEM LTD (BRPE)
Inventor: CHABRAND C J LITTLE I R MCNALLY J P
Language: NO
Application: NO 19933078 A 19930830 (Division of application) NO 19972953 A 19970624 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-210/16(A)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,DE,20060101,20060521,C) C08F-4/02 (R,I,M,DE,20060101,20060521,A) C08F-4/60(R,I,M,JP,20060101,20060310,A,L) C08F-4/64 (R,I,M,EP,20060101,20060521,A) C08F-4/65(R,I,M,JP,20060101,20060310,A,L) C08F-4/656 (R,I,M,JP,20060101,20060310,A,F) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,I,M,JP,20060101,20060310,A,L)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4

Russia
Publication Number: RU 2126424 C1 (Update 200022 E)
Publication Date: 19990220
Assignee: BP CHEM LTD (BRPE)
Language: RU
Application: RU 199350568 A 19930831 (Local application)
Priority: GB 199218805 A 19920904
Original IPC: C08F-10/00(A) C08F-4/602(B) C08F-4/76(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051110,A) C08F-10/00

(R,I,M,EP,20060101,20051110,C) C08F-4/00(R,I,M,EP,20060101,20051110,C) C08F-4/602 (R,I,M,EP,20060101,20051110,A) C08F-4/76(R,I,M,EP,20060101,20051110,A)

United States
Publication Number: US 5714425 A (Update 199812 E)
Publication Date: 19980203
Catalyst compositions and process for preparing polyolefins.
Assignee: BP Chemicals Limited, London, GB (BRPE)
Inventor: McNally, John Paul, Berkshire, GB Little, Ian Raymond, Middlesex, GB Chabrand, Christine Jacqueline, Martigues, FR
Agent: Brooks Haidt Haffner Delahunty
Language: EN (10 pages, 2 drawings)
Application: US 1993112098 A 19930826 (Continuation of application) US 1995467079 A 19950606 (Continuation of application) US 1995513663 A 19950810 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: B01J-31/00(A) C07F-7/28(B) C07F-17/00(B) C07F-17/02(B)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,US,20060101,20060521,C) C08F-4/64 (R,I,M,US,20060101,20060521,A) C08F-4/659(R,N,M,EP,20060101,20051008,A) C08F-4/6592 (R,N,M,EP,20060101,20051008,A)
Current ECLA class: C08F-10/00+4/6592B4
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592B4
Current US Class (main): 502-117000
Current US Class (secondary): 502-103000 502-152000 502-158000 526-160000 526-943000 556-052000 556-053000 556-056000 987-002000
Original US Class (main): 502117
Original US Class (secondary): 502103 502152 502158 55652 55653 55656 526160 526943 9872
Original Abstract: Catalyst compositions comprising metallocene complexes having polymerisable olefinic groups substituent on an organic group containing a cyclopentadienyl nucleus may be used for the preparation of polyolefins. The catalyst compositions may be in the form of polymers comprising the metallocene complex and may be suitably supported on inorganic supports. Polymers having a broad range of density and melt indices as well as low hexane extractables and excellent powder morphology and flowability may be obtained by use of the catalyst compositions. Preferred metallocene complexes are zirconium complexes in which the polymerisable olefinic group is vinyl.
Claim: 1.A catalyst for use in the polymerisation of olefins characterised in th at it comprises at least one metallocene complex of general formula I o r II [0000.0010] * wherein R is a monovalent or divalent 1-20C hydrocarbyl group, or a 1 -20C hydrocarbyl group containing substituent oxygen, silicon, phosph orus, nitrogen or boron atoms, with the proviso that at least one R g roup contains a polymerizable olefinic group containing up to 4 carbo n atoms, and, when there are two R groups present, they may be the sa me or different, and when R is divalent it is directly attached to M, and replaces a Y ligand, * wherein * X is cyclopentadienyl or indenyl * M is a Group IVA metal, * Y is a monovalent anionic ligand, and * for formula I, * n is an integer of 1 to 10 * x is either 1 or 2, and * when x=1, p=0-3, * when x=2, p=0-2, and * for formula II, * n and m are integers or 0 such that n+m<=1, * p=0-2, and * z is a C1 to C4 alkylene radical or a dialkyl germanium or silicon or an alkyl phosphine or amine radical or bis-dialkylsilyl or dialkylge rmanyl containing hydrocarbyl groups having 1 to 4 carbon atoms bridg ing said cyclopentadienyl or indenyl group. |US 5714555 A (Update 199812 E)
Publication Date: 19980203
Catalyst compositions and pro cess for preparing polyolefins.
Assignee: BP Chemicals Limited, Lon don, GB (BRPE)
Inventor: McNally, John Paul, Berkshire, GB Little, Ia n Raymond, Middlesex, GB Chabrand, Christine Jacqueline, Martigues, F R

Agent: Brooks Haidt Haffner Delahunty
Language: EN (10 pages, 0 dr awings)
Application: US 1993112098 A 19930828 (Division of applicatio n) US 1995467079 A 19950606 (Local application)
Priority: GB 199218805 A 19920904 GB 19935963 A 19930323
Original IPC: C08F-4/44(A)
Current IPC: C08F-10/00(R,I,M,EP,20060101,20051008,A) C08F-10/00 (R,I,M,EP,20060101,20051008,C) C08F-4/00(R,I,M,US,20060101,20060521,C) C08F-4/44 (R,I,M,US,20060101,20060521,A) C08F-4/64(R,I,M,US,20060101,20060521,A) C08F-4/659 (R,N,M,EP,20060101,20051008,A) C08F-4/6592(R,N,M,EP,20060101,20051008,A)
Current ECLA class: C08F-10/00+4/6592 C08F-10/00+4/6592B C08F-10/00+4/6592B4
Current ECLA ICO class: M08F-4:659K M08F-4:659L M08F-4:6592 M08F-4:6592B M08F-4:6592B4
Current US Class (main): 526-127000
Current US Class (secondary): 526-160000 526-904000 526-905000 526-943000
Original US Class (main): 526127
Original US Class (secondary): 526160 526904 526905 526943
Original Abstract: Catalyst compositions comprising metallocene complexes having polymerisable may be used for the preparation of polyolefins. The catalyst compositions may be in the form of polymers comprising the metallocene complex and may be suitably supported on inorganic supports. Polymers having a broad range of density and melt indices as well as low hexane extractables and excellent powder morphology and flowability may be obtained by use of the catalyst compositions. Preferred metallocene complexes are zirconium complexes in which the polymerisable group is vinyl.
Claim: 1.A process for the polymerization of olefins comprising contacting at le ast one olefin monomer with a catalyst composition comprising * (a) a polymer having incorporated into its structure metallocene comp lex of general formula I or II [0000.0010] [0000.0015] * wherein R is a monovalent or divalent 1-20C hydrocarbyl group, or a 1 -20C hydrocarbyl group containing substituent oxygen, silicon, phosph orus, nitrogen or boron atoms with the proviso that at least one R gr oup contains a polymerisable olefinic group containing up to 4 carbon atoms, and when there are two R groups present, they may be the same or different, and when R is divalent it is directly attached to M, a nd replaces a Y ligand, wherein * X is cyclopentadienyl or indenyl, * M is a Group IVA metal, * Y is a monovalent anionic ligand, and * for formula I, * n is an integer of 1 to 10 * x is either 1 or 2, and * when x=1, p=0-3, * when x=2, p=0-2, and * for formula II, * n and m are integers or 0 such that n+m<=1, p=0-2, and * z is a C1 to C4 alkylene radical or a dialkyl germanium or silicon or an alkyl phosphine or amine radical or bis-dialkylsilyl or dialkylge rmanyl containing hydrocarbyl groups having 1 to 4 carbon atoms bridg ing said cyclopentadienyl or indenyl group * and * (b) cocatalyst.

Derwent World Patents Index

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